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Clerk of the Board
California Air Resources Board
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Sacramento, CA 95812

Submitted Electronically

Comments of Occidental Petroleum Corporation on Air Resources Board 15-Day Modifications to Proposed Regulations for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols (Release Date: September 12, 2011)

Occidental Petroleum Corporation ("Occidental") respectfully submits the following comments on the California Air Resources Board ("ARB") "15-Day Modifications to Proposed Regulations for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols" ("C&T rule") released on September 12, 2011.

Occidental is a Los Angeles-based oil and gas exploration and production company with operations in the United States, the Middle East, North Africa and Latin America. Occidental is California's largest natural gas producer and the state's second-largest oil and gas producer on a barrels of oil equivalent basis. Its California operations, where more than 8,700 employees and contractors work, encompass more than 3,700 drilling locations and 7,500 active wells in 90 producing fields spanning more than 600 miles. Occidental's significant operating interests in California include:

- Occidental of Elk Hills, Inc. – the majority owner and operator of the Elk Hills field, which produces oil and associated natural gas from the former U.S. Naval Petroleum Reserve located in Kern County;
- THUMS Long Beach Company and Tidelands Oil Production Company – serving as the contract operator for the City of Long Beach of oil and gas fields owned primarily by the State of California;
- Vintage Production Company, LLC – operating properties that produce oil and gas from more than 50 fields primarily located in the Ventura, San Joaquin and Sacramento basins; and
- Elk Hills Power, LLC – a 550-MW gas-fired power generation plant, located in western Kern County.

Emissions efficiency benchmarks for the upstream oil and gas sector

Since the proposal of the C&T rule in 2010, ARB staff has attempted to develop activity based emission benchmarks as a basis for determining direct allocation of allowances to facilities in energy intensive trade exposed sectors, including those for upstream oil and gas extraction and natural gas liquid extraction. The benchmarks found in Table 9-1 (section 95891) of the C&T rule, are reportedly still under consideration by ARB staff despite the proposed adoption of this "final" rule. ARB's September 12 changes contain the second set of changes to benchmark values since July 2011, leaving little time to analyze and understand how these evolving benchmarks were derived. Occidental has not been able to confirm that the recent changes to the benchmarks are based on a complete and accurate representation of any of its facilities' greenhouse gas emissions.

Occidental's facilities are complex and the C&T rule is not sufficiently definite to determine whether ARB segmented comparable Occidental facilities based on appropriate consideration of key operational parameters. For example, Occidental's Elk Hills, THUMS, and Vintage Production operations have the following operational activities: oil production (non-thermal) in primary recovery and assisted by gas injection, waterflooding and other techniques, oil production (thermal), associated gas production, dry gas production, natural gas liquids extraction, water processing, steam production, electricity generation and combined heat and power generation (cogeneration). Occidental cannot determine whether the benchmark value for non-thermal crude oil extraction accurately reflects the average greenhouse gas intensities for these Occidental facilities.

Occidental's Elk Hills and Wilmington field THUMS operations are the top two California fields where non-thermal production operations occur. Significant quantities of associated gas are produced at both operations and dry gas is also produced at Elk Hills (gas production generally has lower greenhouse gas intensities than crude oil production). Even considering the arbitrary 10 percent reduction ARB staff used in calculating weighted average benchmark values from California average greenhouse gas emission intensities, when applied to the Elk Hills and THUMS operations the benchmarks under-represent actual emission intensities by a significant amount. This seems implausible statistically, especially considering the size and nature of the production volumes from these operations, and operationally, considering the longstanding and ongoing emphasis and investments to improve the efficiency of production operations – which also reduces greenhouse gas emissions intensity.

The process used by ARB staff to develop the benchmarks has not yet fully demonstrated adherence to fundamental principles of equity, transparency and reproducibility, and has not shown that it fulfills ARB's objective of minimizing leakage. The proposed benchmarks are derived in a way that remains a "black box" to upstream producers. There has been no published protocol or methodology describing how Staff performed the benchmarking calculations. Further, essentially no data, calculations or other information used to derive the benchmarks have been published by ARB staff. This lack of transparency has made it impossible for Occidental and other upstream oil and gas producers to examine the approach taken by Staff, to duplicate benchmark results or validate Staff conclusions. Further, ARB Staff has indicated that the benchmarks are based on data from California's regulation for greenhouse gas emissions reporting ("MRR") and a voluntary 2007 survey. However, the 2007 data have not been subject to any form of validation/verification, and would certainly not meet verification protocols that are required for MRR data. Occidental believes that the benchmarks should be based on the most recent verified MRR data.

Occidental's operations in California consume electricity purchased from utilities and produced on-site via cogeneration and/or electricity generating units. These on-site generation and cogeneration units are integrated with operations, fueled at least in part by on-site produced gas, which may not be easily re-routed to sales gas lines. Since production of oil and associated gas occurs simultaneously, a reliable and preferably value-generating outlet for gas is necessary to maintain oil production rates. The recent purchase of Sempra Generation's interests in Elk Hills Power, LLC by Occidental underscores the integrated operational linkage between gas production and electricity generation at the Elk Hills oil field. For other California oil & gas producers, electricity and heat consumed in oil & gas production can vary widely, and for some facilities represents a significant portion of energy consumed. However, the data ARB used to determine the oil & gas production benchmarks failed to incorporate indirect greenhouse gas emissions, e.g., those emissions associated with purchased electricity and heat used/produced in the production process.

The lack of appropriate consideration in the calculated benchmarks of the differences in the way electricity is used and produced between California oil and gas facilities represents an important, systemic error in ARB's approach. ARB's failure to capture in the benchmarks the full greenhouse gas emissions burden for equipment powered by electricity purchased from outside a facility creates an arbitrary bias against any facility using electric equipment powered by electricity generated on-site. This error will likely have significant impact in how allowances are allocated, creating an incentive for companies to shut-down on-site electricity generating units (even those operating at marginal heat rates equivalent to that of a state-of-the-art combined cycle gas turbine facility) in favor of purchasing power from the grid and/or outsourcing thermal purchases. Benefits provided by on-site generation include reduced greenhouse gas emissions resulting from lower effective heat rates (generation efficiency), reduced transmission losses, increased electric system resource adequacy, and reduced spinning reserve and peaking capacity requirements. In short, ARB's failure to develop an accurate benchmark – one that reflects both direct emissions and those emissions associated with grid-sourced electricity – will likely spur more imports of out-of-state electricity, place additional load on the state's transmission system and will not result in any greenhouse emissions reductions. Certainly, this cannot reflect the intent of ARB.

EPA's 40 CFR Part 98, Subpart W rule for greenhouse gas reporting from upstream petroleum and natural gas systems, which has been incorporated into ARB's greenhouse gas emissions reporting rule, will require reporting emissions from more equipment types and use a facility definition that that was not included in ARB's upstream oil & gas extraction sector benchmark calculations. The consequences of these inconsistencies and the impact of the significantly expanded geographical scope in the EPA Subpart W facility definition have not been thoroughly addressed by Staff during the rulemaking process. These reporting anomalies will compound the errors in the 2007 voluntary reporting data and the other benchmarking issues noted above.

Occidental alone, and as a member of the Western States Petroleum Association (WSPA) and the Energy Producers and Users Coalition (EPUC), has met several times with ARB staff to address specific concerns and propose approaches to resolve these matters. For additional information, Occidental references and incorporates herein its earlier comments (dated November 15, 2010, December 15, 2010 and August 11, 2011), and supports and incorporates herein the related comments submitted by WSPA and EPUC in response to the 15-day changes issued July 25 and 27, 2011 under the cap and trade rulemaking.

Recommendation: Occidental recommends that ARB Staff work with the oil and gas industry to ensure the appropriateness and accuracy of the sector benchmark values through confirmation of the reported and verified data and the calculation methodologies.

Oxy would appreciate the opportunity to discuss these comments with ARB staff.

Respectfully,



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